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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,736	04/04/2006	Hiroshi Doi	MAT-8830US	5470
52473	7590	08/13/2008		
RATNERPRESTIA P.O. BOX 980 VALLEY FORGE, PA 19482			EXAMINER BATISTA, MARCOS	
			ART UNIT 2617	PAPER NUMBER
			MAIL DATE 08/13/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,736	<b>Applicant(s)</b> DOI ET AL.	
	<b>Examiner</b> MARCOS BATISTA	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5, 8,11,12,15-22 and 29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,8,11,12,15-22 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Art Unit- Location*

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.
2. This Action is in response to Applicant's amendment filed on June 13, 2008. **Claims 1, 5, 8, 11, 12, 15-22, 29, and 30** are now pending in the present application. **This Action is made FINAL.**

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 8, 11, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salokannel et al. (US 20050249173 A1), hereafter “Salokannel,” in view of Ho et al. (US 20060092909 A1), hereafter “Ho.”

Consider claim 1, Salokannel discloses transmitting beacons using beacon periods so that the beacons do not conflict with one another, comprising: a step of producing first moving status information received from a radio communication apparatus, and information including an identifier for specifying another radio communication apparatus notifying the first moving status information and a beacon slot position, as beacon period occupancy information included in the beacon (**see fig. 3, [0061] lines 3-9**); a step of adding a second moving status information to a beacon, notifying the radio communication apparatus about a request for moving of a beacon slot position of the other radio communication apparatus (**see [0058] lines 1-5, [0064] lines 1-11, [0095] lines 10-14** – each device communicates to the other devices its beacon position in the beacon messages); a step of transmitting the beacon at a beacon slot of the other radio communication apparatus (**see [0062] lines 1-2**); a detection step in which a radio communication apparatus detects whether in the beacon period there are empty beacon slots before the beacon slot which is the period for transmitting beacons of that radio communication (**see fig. 7, [0093], lines 1-8, [0098] lines 1-9**).

Salokannel, however, does not particular refer to moving the beacon slot to the empty

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beacon slot and, moving after the specified number of super frames, a step in which the other radio communication apparatus moves its beacon slot to the empty beacon slot and transmits the beacon after the specified number of super frames, when an empty beacon slot is detected in the detection step, transmission of the beacon from the radio communication apparatus programmed to move is not confirmed from the beacon period occupancy information.

Ho, in analogous art, teaches moving the beacon slot to the empty beacon slot and, moving after the specified number of super frames (**see abstract, [0025] lines 1-7**), a step in which the other radio communication apparatus moves its beacon slot to the empty beacon slot and transmits the beacon after the specified number of super frames, when an empty beacon slot is detected in the detection step, transmission of the beacon from the radio communication apparatus programmed to move is not confirmed from the beacon period occupancy information (**see fig. 3D, [0026] lines 1-15 – alternative form of claim has been used**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Salokannel and have it include moving the beacon slot to the empty beacon slot and, moving after the specified number of super frames, a step in which the other radio communication apparatus moves its beacon slot to the empty beacon slot and transmits the beacon after the specified number of super frames, when an empty beacon slot is detected in the detection step, transmission of the beacon from the radio communication apparatus programmed to move is not confirmed from the beacon period occupancy information, as taught by Ho. The motivation would have been in order to improve data throughput in a distributed wireless network (see [0009] lines 10-12).

Consider claim 8, this claim discusses the same subject matter as claim 1. Therefore, it

has been analyzed and rejected based upon the rejection to claim 1.

Consider claim 11, Salokannel as modified by Ho teaches claim 8, Salokannel further teaches when the radio communication apparatus detects a change of beacon formation, that is, the arrangement of beacon slot positions of the radio communication apparatus, by checking the beacon and the beacon period occupancy information received by the radio communication apparatus, the radio communication apparatus performs detection of an empty beacon slot and movement processing for moving its beacon slot position to the empty slot (see [0076] - [0078]).

Consider claims 29 and 30, these claims discuss the same subject matter as claims 1 and 8 respectively. Therefore, they have been analyzed and rejected based upon the rejection to claims 1 and 8 – claims 29 and 30 only adds numbers to the beacon messages sent from various communication devices. The rejection made to claims 1 and 8 shows that more than one beacon messages is exchange between the various communication devices of Salokannel invention.

4. Claims 5, 12, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salokannel et al. (US 20050249173 A1), hereafter “Salokannel,” in view of Ho et al. (US 20060092909 A1), hereafter “Ho,” further in view of Ho et al. (US 20050259754 A1), hereafter “Ho2,”

Consider claims 5 and 12, Salokannel as modified by Ho teaches the invention as in claims 1 and 8 above, but does not particular refer to moving status information is a counter value of a movable counter that counts the specified number of super frames or a flag.

Ho2, in analogous art, teaches moving status information is a counter value of a movable counter that counts the specified number of super frames or a flag (see [0064]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Salokannel as modified by Ho and have it include moving status information is a counter value of a movable counter that counts the specified number of super frames or a flag, as taught by Ho2. The motivation would have been in order to provide synchronizing clocks of transmitters and receivers and preserving packet timing relationships, as discussed by Ho2 (see [0008]).

Consider claim 18, Salokannel as modified by Ho teaches the invention as in claim 1 above, but does not particular refer to the radio communication apparatus detects, when the counter value of the radio communication apparatus is the maximum value while the radio communication apparatus is counting the specified number of super frames, other radio communication apparatuses are found to have the maximum counter value from the first moving status information or other radio communication apparatuses are found to have the maximum counter value from beacon period occupancy information, or when the counter value of the radio communication apparatus is the maximum value -1, other radio communication apparatuses from the moving status information, and, when the counter value of the radio communication apparatus is neither the maximum value nor the maximum value-1, other radio communication apparatuses having the identical counter value from the moving status information, or other radio communication apparatuses having a value of the counter value + 1 from the beacon period occupancy information, and in that when the radio communication apparatus detects radio communication apparatuses satisfying any one of the above conditions, the radio communication apparatus in the lowest slot position among the radio communication apparatuses continues the count and the other radio communication apparatuses are reset to the specified counter value.

Ho2, in analogous art, teaches the radio communication apparatus detects, when the counter value of the radio communication apparatus is the maximum value while the radio communication apparatus is counting the specified number of super frames, other radio communication apparatuses are found to have the maximum counter value from the first moving status information or other radio communication apparatuses are found to have the maximum counter value from beacon period occupancy information, or when the counter value of the radio communication apparatus is the maximum value -1, other radio communication apparatuses from the moving status information, and, when the counter value of the radio communication apparatus is neither the maximum value nor the maximum value-1, other radio communication apparatuses having the identical counter value from the moving status information, or other radio communication apparatuses having a value of the counter value + 1 from the beacon period occupancy information, and in that when the radio communication apparatus detects radio communication apparatuses satisfying any one of the above conditions, the radio communication apparatus in the lowest slot position among the radio communication apparatuses continues the count and the other radio communication apparatuses are reset to the specified counter value (see [0064]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Salokannel as modified by Ho and have it include the radio communication apparatus detects, when the counter value of the radio communication apparatus is the maximum value while the radio communication apparatus is counting the specified number of super frames, other radio communication apparatuses are found to have the maximum counter value from the first moving status information or other radio communication



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apparatuses are found to have the maximum counter value from beacon period occupancy information, or when the counter value of the radio communication apparatus is the maximum value -1, other radio communication apparatuses from the moving status information, and, when the counter value of the radio communication apparatus is neither the maximum value nor the maximum value-1, other radio communication apparatuses having the identical counter value from the moving status information, or other radio communication apparatuses having a value of the counter value + 1 from the beacon period occupancy information, and in that when the radio communication apparatus detects radio communication apparatuses satisfying any one of the above conditions, the radio communication apparatus in the lowest slot position among the radio communication apparatuses continues the count and the other radio communication apparatuses are reset to the specified counter value., as taught by Ho2. The motivation would have been in order to provide synchronizing clocks of transmitters and receivers and preserving packet timing relationships, as discussed by Ho2 (see [0008]).

Consider claim 19, Salokannel as modified by Ho and Ho2 teaches the invention as in claim 18 above. Ho2 further teaches when the radio communication apparatus receives the beacon period occupancy information of another radio communication apparatus having the maximum value or a counter value identical with the counter value of the radio communication apparatus in question other than 0 during counting, the radio communication apparatus stops the count and resets the counter value of the radio communication apparatus to the maximum value (see [0064]). It would have been obvious to have modified Salokannel's invention with the teaching of Ho2. The motivation would have been in order to provide synchronizing clocks of transmitters and receivers and preserving packet timing relationships, as discussed by Ho2 (see

[0008]).

5. Claims 15-17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salokannel et al. (US 20050249173 A1), hereafter "Salokannel," in view of Ho et al.( US 20060092909 A1), hereafter "Ho," further in view of Nishiyama et al.(US 20050036475 A1), hereafter "Nishiyama."

Consider claims 15, 20 and 21, Salokannel as modified by Ho teaches the invention as in claims 1 and 8 above, but does not particular refer to moving status information further includes movement destination slot position information indicating the planned movement destination of the beacon slot position of the radio communication apparatus, and when the radio communication apparatus detects that there is a empty beacon slot other than the beacon slots designated by the movement destination slot position information of the other radio communication apparatuses which transmit their beacons during the time from the beacon slot of the radio communication apparatus in question until the end of the beacon period, the radio communication apparatus selects any one of these empty beacon slots, notifies the other radio communication apparatuses that this empty beacon slot will be the movement destination beacon slot position of the radio communication apparatus in question, and starts count of the specified super frames.

Nishiyama, in analogous art, teaches moving status information further includes movement destination slot position information indicating the planned movement destination of the beacon slot position of the radio communication apparatus, and when the radio communication apparatus detects that there is a empty beacon slot other than the beacon slots

designated by the movement destination slot position information of the other radio communication apparatuses which transmit their beacons during the time from the beacon slot of the radio communication apparatus in question until the end of the beacon period, the radio communication apparatus selects any one of these empty beacon slots, notifies the other radio communication apparatuses that this empty beacon slot will be the movement destination beacon slot position of the radio communication apparatus in question, and starts count of the specified super frames (see Fig 2, [0104] - [0106]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Salokannel as modified by Ho and have it include moving status information further includes movement destination slot position information indicating the planned movement destination of the beacon slot position of the radio communication apparatus, and when the radio communication apparatus detects that there is a empty beacon slot other than the beacon slots designated by the movement destination slot position information of the other radio communication apparatuses which transmit their beacons during the time from the beacon slot of the radio communication apparatus in question until the end of the beacon period, the radio communication apparatus selects any one of these empty beacon slots, notifies the other radio communication apparatuses that this empty beacon slot will be the movement destination beacon slot position of the radio communication apparatus in question, and starts count of the specified super frames, as taught by Nishiyama. The motivation would have been in order to allow data transmission to be efficiently performed under an ad-hoc communication environment (see [0040]).

Consider claims 16 and 22, Salokannel as modified by Ho and further modified by

Nishiyama, teaches claim 15. Nishiyama also teaches radio communication apparatus repeatedly selects the next highest empty slot in the next super frame until the radio communication apparatus is in the rearmost slot the radio communication apparatus repeatedly selects the next highest empty slot in the next super frame until the radio communication apparatus is in the lowest slot. (see Fig 19, [0106], [0136] and [0137].

It would have been obvious to have modified Salokannel's invention with the teaching of Nishiyama. The motivation would have been in order to allow data transmission to be efficiently performed under an ad-hoc communication environment (see [0040]).

Consider claims 17, Salokannel as modified by Ho and further modified by Nishiyama, teaches claim 15. Nishiyama also teaches selection of an arbitrary beacon slot among the empty beacon slots (see [0165]). It would have been obvious to have modified Salokannel's invention with the teaching of Nishiyama. The motivation would have been in order to allow data transmission to be efficiently performed under an ad-hoc communication environment (see [0040]).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 8, 29, and 30 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marcos Batista, whose telephone number is (571) 270-5209. The Examiner can normally be reached on Monday-Thursday from 8:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Pérez-Gutiérrez can be reached at (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Marcos Batista*

/M. B./

08/01/2008

/Rafael Pérez-Gutiérrez/

Supervisory Patent Examiner, Art Unit 2617